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CYTYC CORPORATION
Darry Pattinson, Sr. IP Paralegal
250 CAMPUS DRIVE
MARLBOROUGH, MA 01752

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FLOOD, MICHELE C	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte DAVID HUNG[1]

Appeal 2008-5032
Application 09/827,371
Technology Center 1600

Decided:[2] February 12, 2009

Before DONALD E. ADAMS, RICHARD M. LEBOVITZ, and MELANIE L. McCOLLUM, *Administrative Patent Judges*.

McCOLLUM, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a method for increasing retrievable material from a patient's breast duct. The

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[1] The real party in interest is Cytyc Corporation, Inc. (App. Br. 1).
[2] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Examiner has rejected the claims as nonenabled and/or anticipated. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

Claims 1, 6, 22, and 25-27 are on appeal.[3] We will focus on claim 1, the broadest claim on appeal, which reads as follows:

1. A method for increasing retrievable intraductal fluid, cells and/or other material from a breast duct of a patient, comprising:

administering intraductally to the patient an agent that increases secretion of ductal fluid into a breast duct, wherein the agent is selected from the group consisting of a hypotonic solution, a buffered solution, a nonabsorbable biocompatible solution, a protein, a colloid, a sugar, a polymer, mannitol, sorbitol, glucose, glycerol, sucrose, raffinose, fructose, lactulose, polyethyleneglycol (PEG), maltodextrin, dextran, dextran 70, hydroxyethyl starch, fluid gelatin, a synthetic colloid, an antibody, a binding protein, albumin, a hormone, a natural herb, an extract from a natural herb, silymarin, a surfactant, a growth factor, oxytocin, prolactin, an organic molecule, a muscle relaxant, and a ductal orifice dilator.

Claims 1, 6, 22, and 26 stand rejected under 35 U.S.C. § 112, first paragraph, because the Specification "does not enable any person skilled in the art to which it pertains, or with it is most nearly connected, to make and/or use the invention commensurate in scope with these claims" (Ans. 4).

Claims 1, 6, 22, 25, and 27 stand rejected under 35 U.S.C. § 102(b) as anticipated by Martyn,[4] as evidenced by Kartinos[5] and Mullins[6] (Ans. 12).

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[3] Claims 23 and 24 are also pending but are no longer rejected by the Examiner (Ans. 2).

[4] Padmini Martyn and Ian R. Falconer, *The effect of progesterone on prolactin stimulation of fatty acid synthesis, glycerolipid synthesis and lipogenic-enzyme activities in mammary glands of pseudopregnant rabbits, after explant culture or intraductal injection*, 231 BIOCHEM. J. 321-328 (1985).

ENABLEMENT

The Examiner finds that the Specification, "while being enabling for a method . . . comprising intraductally [administering] to the patient an effective [amount] of mannitol . . . , does not reasonably provide enablement for the claim-designated method comprising the intraductal administration of any and all amounts of any and all of the agents recited in the Markush group of Claim 1" (Ans. 4).

Issue

Did the Examiner err in concluding that the Specification does not enable the full scope of the agents recited in the Markush group of claim 1?

Findings of Fact

1. The Specification discusses "a method for preparing for intraductal retrieval of fluid, cells and/or other material from a breast duct of a patient, by administering an agent to the patient that increases retrievable fluid from a breast duct" (Spec. 3: 16-18).

2. The Specification states that, "where an agent is administered intraductally to a breast duct, . . . the agent can be selected from the group consisting of . . . nonabsorbable biocompatible solution . . . , mannitol, . . . dextran (*e.g.* dextran 70), . . . prolactin, [and] a small organic molecule . . . ." (*id.* at 3: 21 to 4: 9.)

3. The Specification also states:

> Whether an agent is capable of increasing or at least maintaining the amount of collectable fluid (with relation to the amount of fluid infused) in the ductal lumen can be determined

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[5] Kartinos et al., US 4,339,433, Jul. 13, 1982.
[6] Mullins, US 6,235,305 B1, May 22, 2001.

> by routine tests to determine whether collectable fluid in the duct is increased upon administration of an agent as compared to administration of a control isotonic solution to a neighboring control duct.

(*Id.* at 8: 3-7.)

4. The Specification includes one example "to test the effects of the introduction of a solution containing mannitol on the secretion of fluid from the breast ducts of live rabbits" (*id.* at 14: 23-25). Based on this experiment, the Specification concludes that more fluid could be collected from ducts injected with mannitol solution than from ducts injected with PBS solution (*id.* at 16: 4-9).

Principles of Law

"The first paragraph of 35 U.S.C. § 112 requires, *inter alia*, that the specification of a patent enable any person skilled in the art to which it pertains to make and use the claimed invention . . . without 'undue experimentation.'" *In re Vaeck*, 947 F.2d 488, 495 (Fed. Cir. 1991) (citing *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988)). "It is well settled that patent applicants are not required to disclose every species encompassed by their claims, even in an unpredictable art." *In re Vaeck*, 947 F.2d at 496. In addition, "sufficient disclosure . . . to teach those of ordinary skill how to make and how to use the invention . . . means that the disclosure must adequately guide the art worker to determine, without undue experimentation, which species among all those encompassed by the claimed genus possess the disclosed utility." *Id.*

"It is not a function of the claims to specifically exclude . . . possible inoperative substances." *In re Dinh-Nguyen*, 492 F.2d 856, 858-59 (CCPA

1974). "Of course, if the number of inoperative combinations becomes significant, and in effect forces one of ordinary skill in the art to experiment unduly in order to practice the claimed invention, the claims might indeed be invalid." *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1576-77 (Fed. Cir. 1984).

In addition, "a specification need not disclose what is well known in the art. However, that general, oft-repeated statement is merely a rule of supplementation, not a substitute for a basic enabling disclosure." *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1366 (Fed. Cir. 1997) (citation omitted). "It is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement." *Id.*

Analysis

Claim 1 is directed to a method for increasing retrievable fluid, cells, and/or other material from a breast duct of a patient. The method comprises administering intraductally to the patient an agent that increases secretion of ductal fluid into a breast duct, the agent being selected from a Markush group. The Markush group includes 36 members, including members as broad as "an organic molecule."

The Specification discloses that more fluid could be collected from ducts injected with mannitol solution than PBS (Finding of Fact (FF) 4). The Specification also discloses that whether an agent is capable of increasing ductal fluid secretion can be determined by routine tests (FF 3). However, the Specification does not provide sufficient guidance as to which agents should be subjected to these tests in order to identify ones that are

capable of increasing ductal fluid secretion. The Specification, as well as claim 1, provides a Markush group of potential agents. However, because this Markush group is so broad (*see* e.g., Ans. 10-11), we agree that the Examiner has set forth a prima facie case that it would require undue experimentation to make and use agents within the full scope of claim 1.

Appellant argues, however, that "a claim can encompass 'inoperative' embodiments so long as one of ordinary skill can ascertain this without undue experimentation" (App. Br.[7] 6). In particular, Appellant argues:

> The Examiner has explicitly stated that the specification is enabled for a method of preparing for intraductal retrieval of fluid, cells and/or other material from a breast duct of a patient comprising administering intraductally to a patient an effective amount of mannitol that increases the ductal fluid collection from a breast duct of a patient . . . . As such, one of skill in the art could easily conclude that the administration of other agents with similar physical characteristics as mannitol (e.g., high molecular weight; hydroscopic; etc.) into a breast duct would potentially increase the amount of ductal fluid within the breast duct. Examples of other high molecular weight hydroscopic agents can be found in the Markush group of Claim 1 such as sorbitol, glucose, glycerol, sucrose, raffinose, fructose, lactulose, and dextran to name just a few. Since the Appellant has provided the experimental protocol for the administration of agents to a breast duct, one skilled in the art would easily be able to introduce any of the aforementioned high molecular weight hydroscopic agents into the breast duct of a patient (or an animal model) to test for an increase in intraductal fluid. Such an assessment would be routinely performed in the art. Hence, inoperative embodiments encompassed by claim 1 (i.e., agents that are non-hydroscopic) could be easily identified by one of skill in the art without undue experimentation.

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[7] Appeal Brief filed August 22, 2007.

(*Id.*)

We are not persuaded. While we agree that a claim can encompass inoperative embodiments, in this case we agree with the Examiner that the broad Markush group, together with a lack of direction in the Specification as to which members of the group would have the claimed function, "forces one of ordinary skill in the art to experiment unduly in order to practice the claimed invention." *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, *supra*.

With regard to Appellant's argument that "one of skill in the art could easily conclude that the administration of other agents with similar physical characteristics as mannitol (e.g., high molecular weight; hydroscopic [sic, hygroscopic?]; etc.) into a breast duct would potentially increase the amount of ductal fluid within the breast duct," we note that the Markush group of claim 1 encompasses a large quantity of agents that do not have these physical characteristics. For example, claim 1 recites "an organic molecule," which clearly encompasses molecules that are of low molecular weight and are not "hydroscopic." Thus, even if "one of skill in the art could easily conclude that the administration of other agents with similar physical characteristics as mannitol . . . would potentially increase the amount of ductal fluid within the breast duct" (App. Br. 6), this would not enable the full scope of claim 1.

Appellant also argues:

> [O]ne skilled in the art, in this case biochemistry, would clearly be familiar with the kinds of agents which, when placed within a body lumen (e.g., breast duct) would increase secretions into the lumen from surrounding tissues. Even assuming *arguendo* that there may be a large number of agents which would fail to

> increase secretion of ductal fluid in a breast duct, the Appellant has provided an experimental protocol for the administration of agents to a breast duct so that one skilled in the art would easily be able to introduce a large number of agents into the breast duct of a patient (or an animal model) to test for an increase in intraductal fluid.

(App. Br. 8-9.)

We are not persuaded. In particular, Appellant has not provided sufficient evidence that one of ordinary skill in the art would be familiar with the kinds of agents that, when placed within a body lumen, would increase secretions into the lumen from surrounding tissue. In addition, although "a specification need not disclose what is well known in the art . . . , that . . . statement is merely a rule of supplementation, not a substitute for a basic enabling disclosure." *Genentech, Inc. v. Novo Nordisk A/S*, *supra*.

Conclusion

Appellant has not shown that the Examiner erred in concluding that the Specification does not enable claim 1. Claims 6, 22, and 26 have not been argued separately and therefore fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii).

ANTICIPATION

The Examiner finds:

> Martyn teaches a method for increasing retrievable intraductal fluid, cells and/or other material from a breast duct of a patient comprising administering intraductally to the patient prolactin as either an emulsion or an aqueous solution, made by dissolving prolactin in NaOH and diluting with phosphate buffered saline containing Blue Dextran (a nonabsorbable

> biocompatible solution, as evidenced by the teachings of Kartinos and Mullins).

(Ans. 13.) Thus, the Examiner concludes that Martyn anticipates three members of the Markush group of claim 1: a nonabsorbable biocompatible solution (*see* claim 22), dextran (*see* claim 25), and prolactin (*see* claim 27).

Issue

Did the Examiner err in concluding that Martyn anticipates claim 1?

Findings of Fact

5. Martyn discloses that "[i]njection of prolactin intraductally into 11-day-pseudopregnant rabbits stimulated glycerolipid synthesis, fatty acid synthesis and enzymes involved in fatty acid synthesis, after 3 days" (Martyn, Abstract).

6. In particular, Martyn discloses that "[p]rolactin was injected either as emulsion or as aqueous solution, made by dissolving prolactin in . . . 0.1 M-NaOH and immediately diluting it with phosphate-buffered saline . . . containing . . . Blue Dextran" (*id.* at 323).

7. In addition, Martyn discloses an emulsion "prepared by sonicating briefly 2 parts of aqueous phase, consisting of phosphate-buffered saline containing . . . bovine serum albumin and . . . Blue Dextran . . . , with . . . safflower oil" (*id.*).

8. Martyn also discloses that "mammary glands 3 days after intraductal injection of prolactin . . . had more secretion as assessed visually than did untreated, emulsion-treated or progesterone-treated glands within the same rabbits" (*id.* at 326).

9. Referring to Table 4, Martyn discloses that "[f]atty acid synthesis measured by [1-^{14}C]acetate incorporation remained low in explants

of rabbit mammary glands 5 days after intraductal injection of phosphate-buffered saline into the glands on day 11 of pseudopregnancy" (*id.*).

10. Martyn Table 4 is reproduced below:

Hormones injected	[1-^{14}C]Acetate incorporation into fatty acids (nmol/h per mg of explant)	Serum progesterone (ng/ml)
Phosphate-buffered saline containing Blue Dextran (i.d.)	0.16 ± 0.03 (2)	1.1 (0.9, 1.3)
Prolactin (i.d.)	2.30 ± 0.21* (4)	1.3 ± 0.15
Prolactin (i.d.) plus progesterone (i.m.) (10 mg/day)	2.05 ± 0.12* (2)	4.7 (4.5, 5.0)
Prolactin (i.d.) plus progesterone (i.m.) (80 mg/day)	1.02 ± 0.26† (4)	76.4 ± 16.8

(*Id.*) The data in this Table shows that prolactin caused an increase in fatty acid synthesis in comparison to saline containing Blue Dextran (*id.*). However, because there is no comparison to phosphate-buffered saline that does not contain Blue Dextran, this data does not show that dextran does not increase fatty acid synthesis as compared to saline alone.

11. Kartinos discloses that "dextran sodium sulfate of a molecular weight of about 500,000 was evaluated in-vitro as a potential nonabsorbable osmotic agent for peritoneal dialysis" (Kartinos, col. 2, ll. 63-65).

12. Mullins discloses that that "[e]xamples of non-absorbable polysaccharides are polysaccharides having a molecular weight of greater than 8 kDa such as dextrans" (Mullins, col. 1, ll. 54-56).

Principles of Law

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987).

"[I]n an ex parte proceeding to obtain a patent, . . . the Patent Office has the initial burden of coming forward with some sort of evidence tending

to disprove novelty." *In re Wilder*, 429 F.2d 447, 450 (CCPA 1970). "However, when the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990).

> [I]t is elementary that the mere recitation of a newly discovered function or property, inherently possessed by things in the prior art, does not cause a claim drawn to those things to distinguish over the prior art. Additionally, where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it possesses the authority to require the applicant to prove that the subject matter shown to be in the prior art does not possess the characteristic relied on.

In re Best, 562 F.2d 1252, 1254-55 (CCPA 1977) (quoting *In re Swinehart*, 439 F.2d 210, 212-13 (CCPA 1971)).

In addition, "[i]f the preamble adds no limitations to those in the body of the claim, the preamble is not itself a claim limitation and is irrelevant to proper construction of the claim." *IMS Technology, Inc. v. Haas Automation, Inc.*, 206 F.3d 1422, 1434 (Fed. Cir. 2000).

Analysis

Claim 1 is directed to a method for increasing retrievable intraductal fluid, cells, and/or other material from a breast duct of a patient. The method comprises administering intraductally to the patient an agent that increases secretion of ductal fluid into a breast duct, wherein the agent is selected from a group that includes a nonabsorbable biocompatible solution, dextran, and prolactin.

Martyn discloses administering intraductally to a patient an emulsion or an aqueous solution containing prolactin and dextran (FF 5-6). Martyn also discloses that the "mammary glands 3 days after intraductal injection of prolactin . . . had more secretion as assessed visually than did untreated, emulsion-treated or progesterone-treated glands within the same rabbits" (FF 8). Thus, we agree that the Examiner has set forth a prima facie case that Martyn anticipates claim 1.

Appellant argues, however, that "[t]here is no evidence presented by the Examiner that Martyn *et al.* teaches or suggests that the intraductal administration of prolactin increases intraductal fluid. Martyn *et al.* teaches that the administration of prolactin increases fatty acid and glycerolipid synthesis." (App. Br. 19.)

We are not persuaded. First, as noted above, Martyn discloses that the "mammary glands 3 days after intraductal injection of prolactin . . . had more secretion as assessed visually than did untreated, emulsion-treated or progesterone-treated glands within the same rabbits" (FF 8). Thus, the Examiner had reasonable basis for believing that it would increase secretion of ductal fluid. In addition, the Specification lists prolactin as an agent for increasing retrievable fluid from a breast duct (FF 1-2). Since the Patent Office is not in a position to test compounds to see if they have the desired property, we agree with the Examiner that Martyn's teachings coupled with the identification of prolactin in the Specification as a potential agent is enough to shift the burden to Appellant to show that prolactin is not an agent that increases ductal fluid secretion. Appellant has not met this burden.

Appellant also argues that Martyn "does not teach or suggest a method of using a nonabsorbable biocompatible solution to increase retrievable ductal fluid from a breast duct" (App. Br. 18). In particular, Appellant argues:

> The nonabsorbable biocompatible agent in the Examiner's argument is Blue Dextran which is not an agent which has been shown to increase the secretion of ductal fluid into a breast duct. In fact, as evidenced on page 326, Column 1, lines 28-41, as well as Table 4 on page 326 of Martyn *et al.*, Blue Dextran mixed with Phosphate-buffered saline had no effect on fatty acid synthesis. There is no evidence of record that teaches or suggests that the nonabsorbable biocompatible agent recited by the Examiner (Blue Dextran) when administered to a breast duct, increases secretion of ductal fluid into the breast duct.

(*Id.* at 19.)

We are not persuaded. First, we have already determined that Appellant has not rebutted the Examiner's prima facie case that Martyn's disclosure of administering prolactin anticipates claim 1. Thus, to show that claim 1 is anticipated, it is not necessary to show that Martyn's disclosure of administering dextran also anticipates claim 1. However, because the Examiner has rejected claims on this basis that recite agents other than prolactin (claims 22 and 25), we separately address this argument.

Claim 25 recites that the agent is, inter alia, dextran. Claim 22 recites that the agent is a nonabsorbable biocompatible solution. Martyn discloses administering intraductally to a patient an emulsion or an aqueous solution containing Blue Dextran (FF 5-6). Appellant does not dispute the Examiner's finding that Martyn administers a nonabsorbable biocompatible solution (Ans. 13).

The Specification lists dextran and a nonabsorbable biocompatible solution as agents for increasing retrievable fluid from a breast duct (FF 1-2). Since the Patent Office is not in a position to test agents to see if they have the desired property, we agree with the Examiner that the identification of dextran and a nonabsorbable biocompatible solution in the Specification as useful agents is enough to shift the burden to Appellant to show that Blue Dextran and the solutions formed therefrom that are administered in Martyn do not increase ductal fluid secretion.

Appellant argues that Martyn provides evidence that "Blue Dextran mixed with Phosphate-buffered saline had no effect on fatty acid synthesis" (App. Br. 19). However, claim 1, and therefore claims 25 and 22, do not require that the agent increases fatty acid synthesis, merely that it increases secretion of ductal fluid into a breast duct. Appellant has not shown that Blue Dextran or the solutions formed therefrom that are administered in Martyn[8] do not increase ductal fluid secretion.

In addition, Appellant argues that the "Examiner cannot recite a prior art reference that contains two agents (prolactin and Blue Dextran) and then argue that both agents are acting as one for the purposes of anticipation" (App. Br. 19-20). We are not persuaded. There is nothing in claim 1 that requires that the agent be a single compound. In fact, the Markush group of

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[8] In this regard, we note that one of the solutions disclosed in Martyn includes prolactin, as well as Blue Dextran (FF 6). Therefore, even if Blue Dextran is not an agent that increases ductal fluid secretion, Martyn may still disclose a nonabsorbable biocompatible solution that increases ductal fluid secretion.

claim 1 specifically lists members, such as "a nonabsorbable biocompatible solution," that contain more than one component.

Conclusion

Appellant has not rebutted the Examiner's prima facie case that claims 1, 22, and 25 are anticipated by Martyn. Claims 6 and 27 have not been argued separately and therefore fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii).

ORDER

We affirm the rejection of claims 1, 6, 22, and 26 under 35 U.S.C. § 112, first paragraph, and the rejection of claims 1, 6, 22, 25, and 27 under 35 U.S.C. § 102(b).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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CYTYC CORPORATION
Darry Pattinson, Sr. IP Paralegal
250 CAMPUS DRIVE
MARLBOROUGH MA 01752